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ABSTRACT

A study used the opinions of 25 recognized experts in international extension education to identify the in-service training needs of field agents working in training and visit (T&V) systems of extension in developing countries. A pilot-tested nine-item interview schedule was used to interview 25 experts with work and/or consultation experience in international agricultural systems (preferably T&V systems). Inductive data analysis procedures were used to analyze the responses of 20 of the experts contacted. Although the technical component of T&V in-service training was considered fairly successful in transferring technical information to agents, 95% of the experts interviewed rated training in process and delivery skills as deficient. The reported availability of extension trainers and training materials, equipment, and facilities varied by country. Problems were biggest in most countries in sub-Saharan African and Asia. Extension agents' involvement in conducting and planning training sessions was rated minimal at best. Transportation was deemed the most crucial problem facing T&V systems. Role playing and hands-on activities were cited as the most effective teaching methods for in-service training. Eight implications/recommendations regarding T&V inservice training were formulated. Contains 12 references.) (MN)

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EXPERT IDENTIFICATION OF IN-SERVICE TRAINING NEEDS OF FIELD AGENTS WORKING IN TRAINING AND VISIT (T&V) SYSTEMS OF EXTENSION

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INTRODUCTION

Farmers living in developing countries comprise a majority of the one billion farmers in the world (UNDP Report, 1991). Most are faced with poverty and illiteracy and lack access to agricultural credit, farm inputs, and efficient extension services. Many are slower their commercial counterparts in adopting new technologies, competing for scarce resources, and contributing to broad based agriculture. Such problems can only be addressed by providing access to technologies and resources through efficient extension services.

Extension education services have not reached all farmers in developing countries due to the numerous problems faced by the farmers as well as the extension agencies. The challenge lies not only in reaching small scale farmers with new technologies, but also in convincing them of their advantages over traditional methods. Extension will benefit these farmers only if organized and staffed by competent, well-trained personnel. According to a United Nations Development Programs report (1991), 40 percent of all extension agents in developing countries (approximately 225,000 field agents) have inadequate technical and educational training. Consequently, the potential for extension to play an important role in technology transfer is extremely limited. Improving the quality of extension personnel should be a high priority for all national extension systems, and especially those in developing countries.

One way to effectively improve and support extension personnel is through in-service training. In-service training emphasizes knowledge, technical, and professional skills that may be imparted to extension workers, thus increasing on-the-job effectiveness. In-service training is a major component of the Training and Visit (T&V) system of extension. Attention is given to improving specific agents' skills, which will make them more effective and efficient. However, little progress has been made in providing for effective in-service training of extension field personnel who are in direct contact with farmers (Galgali & Lindt, 1983; Rogers, 1969).

The primary aim in training field personnel is to impart

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information and skills for prompt passage to farmers, particularly on how to overcome constraints which limit increased production, how to reduce risks, and how to increase profits (Galgali & Lindt, 1983). This suggests the need for extensionists to be more effective in (1) relevant technologies needed by farmers, (2) diagnostic skills, and (3) appropriate communication techniques. For in-service training to be effective, the above three factors should be addressed properly.

In-service training requires not only skills development but also the trainers' understanding of the training process and role and value of adequate planning of such training. Trainers must be sensitized to all aspects of in-service training, and especially in the areas of needs assessment, designing appropriate training content, content presentation, teaching methodologies, and learning material development.

PURPOSE

The purpose of this study was to utilize expert opinion to identify in-service training needs of field agents working in T&V systems of extension in developing countries. Specific objectives of the study were to examine in-service training in T&V systems as related to: (1) training content and the teaching of communication skills; (2) trainers' availability, qualifications, and teaching methods utilized; (3) the availability of facilities and in-service training materials; (4) participants' value of in-service training sessions; (5) the overall relevancy of in-service training programs; (6) agents' transportation needs in order to participate in in-service training sessions; (7) the most and least productive aspects of in-service training sessions; and (8) the experts' recommendations on in-service training needs.

METHODOLOGY

The study utilized a qualitative methodology which allowed the researchers to capture the underlying in-service training needs of field agents working in T&V extension systems in developing countries. The design also permitted the researcher to record and understand the study participants in their own terms and in sufficient depth. Patton (1990) argued that qualitative methods enable researchers to emphasize the human element of inquiry, and study interdependence of parts and their interaction in complex systems. Data collected from qualitative studies usually consist of detailed descriptions of situations, events, interactions and observed behaviors.

Population and Sample Size

The purposeful sample included 25 experts in international extension. The initial source of experts' names was the Association of International Agricultural and Extension

Education Directory, 1992 Edition. The criteria for selecting the final panel of experts were that an expert: 1) was knowledgeable in international extension education and/or agricultural development; 2) had work and/or consultation experience in international agricultural systems, preferably under T&V extension systems; 3) (preferably) had worked for some time in a developing country using the T&V system; and 4) presently worked and/or consulted within the United States.

Since there are no guidelines regarding sample size in qualitative studies (Patton, 1990), problems of sampling, selection, and frames do not exist in a qualitative design. The small, purposeful sample chosen for this study supports sufficiently the purpose of the study since there is no objective of generalizing to a larger population of experts.

Instrumentation and Data Collection

The researchers developed a nine-item interview schedule designed to investigate in-service training needs in the following focus areas:

(1) The teaching of communication skills to extension agents in T&V in-service training programs;
(2) The availability of in-service trainers, their average qualifications, and the teaching methods they utilize;
(3) The availability of teaching materials and facilities for in-service training of extension agents in T&V systems;
(4) The value of training sessions in supporting agents' job requirements;
(5) In-service training program content and its relevance to individual extension agents;
(6) The availability of transportation to and from in-service training;
(7) The most and the least productive elements of in-service training programs; and
(8) specific recommendations for improving in-service training as suggested by the international extension experts.

The interview schedule was pilot tested with extension professionals from developing countries utilizing T&V system who were currently in graduate school. The purpose of the pilot testing was to: (1) determine clarity of question wording; (2) ascertain relevancy of questions; (3) establish face and content validity; and (4) estimate the average time required for completing an interview. Modifications were made accordingly following the pilot testing.

A letter of introduction explaining the study was mailed to 25 experts on February 12, 1993. The letter asked the experts to identify preferred telephone interview dates and times; a list of issues to be discussed during the interview was attached. Approximately ten days after the letter was mailed, the

researchers telephoned each expert to confirm the final telephone interview date and time. Interviews were conducted during the period beginning March 1 and ending April 1, 1993. With permission from the respondents, all interviews were tape-recorded so as to allow the researchers to concentrate on responses and appropriately organize follow-up questions.

Data Analysis

The study utilized inductive data analysis procedures. According to Lincoln and Guba (1985), inductive analysis aims at uncovering embedded information and making the information more explicit. Information from the respondents was transcribed and summarized on note cards using the constant comparative method of qualitative analysis (Glaser & Strauss, 1967). This method involves four steps: (1) coding the data into as many categories as necessary; (2) integrating categories where possible; (3) delimiting theory or main themes; and (4) examining the resulting coded series comprising the main themes.

To permit precise description of relevant content, raw data was organized into aggregated units (Glaser & Strauss, 1967), a categorization technique involving sorting coded units into provisional categories. Glaser and Strauss further suggest that this analysis be presented in a narrative form, (e.g., using examples from the data to clarify concepts and to demonstrate relationships between analysis and present conditions in the field).

RESULTS AND CONCLUSIONS

Findings are based on responses from twenty experts. Four main themes emerged from the analysis of data: (1) the process and content of in-service training; (2) resources required for in-service training; (3) the value of in-service training to participants; and (4) recommendations for improving in-service training sessions.

Ninety five percent of the experts interviewed indicated that in-service training in T&V system was deficient in teaching process and delivery skills. Experts observed that the technical component of the T&V training sessions received a lot more attention than the teaching of communication skills, sociology, psychology, and demonstration of tasks. Of all extension field agents, village level agents were reported to receive process and delivery skills.

The reported availability of extension trainers varied from country to country depending on the economic conditions of a country. Most countries in sub-Saharan Africa and Asia were reported to be facing problems in this aspect. India and three southern African countries were reported as having sufficient extension trainers. In most countries, trainers

did not adequately utilize effective adult education teaching methods. Responding experts described a typical training session as a series of lectures on technical agriculture. In India and most Asian countries, the average qualifications of extension trainers was estimated to be between a Bachelor of Science and a Master of Science degree; in Africa, a two or three year diploma or certificate was average.

The reported availability of training materials, equipment, and facilities varied depending on economic conditions. Experts felt that although additional teaching resources would certainly help, trainers could still do a good job of teaching by being more creative in their teaching methods and utilizing existing resources.

Many experts were not satisfied with T&V's ability in meeting the training needs of extension agents. More than half of the experts reported that training sessions are conducted in a timely manner according to farming activities. Extension agents' involvement in conducting and planning sessions was reported to be minimal at best.

Attendance by extension agents at training sessions was reported to be very good for almost all countries. T&V training sessions focused more on field crops as compared to livestock, home-economics, and youth management. In most cases, topics emphasized techniques related to farm practices. Most experts reported a negative bias towards home-economics subject matter. Transportation was reported as a critical problem in the field which requires immediate attention. Lack of good roads and vehicles were mentioned as causes.

Experts identified role playing, direct agent' participation, and demonstration as the most effective methods of teaching during the in-service training sessions. Excessive lecturing and a lack of identifying farmers' needs were identified as the least productive aspects of the training sessions. Adult education teaching methods should be utilized, taught to agents, and used in the field at all times.

Based on the study findings, the following conclusions may be made regarding in-service training needs of field agents working in T&V systems in developing countries.

(1) T&V's in-service training program content is deficient in meeting extension field agents' needs, especially in the areas of communication skills development. Findings suggest that the technical component of T&V in-service training is fairly successful in transferring technical information to the agents. However, development of agents' process skills has not received adequate attention.

(2) Training sessions are well attended but their

effectiveness was seriously hindered by inappropriate instructional techniques. Most trainers are professionals with strong technical backgrounds but are inadequately trained to utilize adult education methodologies in their teaching.

(3) Lack of teaching resources can be a problem, but creative trainers can be successful without them. Although the availability of such materials depends on the immediate economic conditions, African countries south of the Sahara seemed to be most affected. Most countries in this region utilize out-dated and inadequate teaching materials. Affluent countries have better training resources and are doing much better in conveying skills to agents as compared to poorer countries. In most training sessions, there is a bias towards field crops as topics for discussions. Home-economics subject matter received minimal attention in many T&V in-service training programs. T&V in-service training usually concentrates on major farming enterprises of specific regions, consequently ignoring other important sectors of rural life (e.g., youth development and family-life planning).

(4) Transportation is the most crucial problem facing T&V systems, particularly in-service-training components. There are insufficient number of vehicles, and those available lack fuel, spare parts, and proper maintenance.

(5) Role playing and hands-on activities are the most effective teaching methods for in-service training. Lecturing as a sole pedagogical approach does not provide the most appropriate learning opportunity. Many trainers over-utilize lecture due to their unfamiliarity with other adult teaching approaches. The responding experts strongly emphasized the need to incorporate the teaching of process and delivery skills and the utilization of adult education teaching techniques, along with the technical subject matter, in the overall training scheme.

EDUCATIONAL IMPORTANCE

Based upon the findings and conclusion, the following implications are suggested.

(1) Developing countries whose economies depend on agriculture should assess in-service training needs of field agents and implement strategies of solving these problems. Such strategies should be integrated with the extension agents training in order to have effective trainees output. Training activities should be based on identified needs of the extension agents. Courses and training programs should be evaluated frequently for their relevancy and effectiveness. Greater emphasis

should be placed on learning through hands-on experiences. In-service training should be a continuous process and relevant to the problems faced by the agents during their field visits.

(2) Extension agents should be given time to participate and repeat what they have learned during in-service training. Small group discussions, role playing, and field trips should be better utilized. Additionally, short practical tests should be given to agents after each training session to assess the skills and knowledge gained.

(3) To encourage field agent participation in in-service training, extension administrators should provide reimbursement for transportation and/or boarding expenses. Efforts to decentralize in-service training programs so as to minimize agents' transportation and boarding expenses should be considered. If decentralization of training venues can be achieved, topics relevant to specific locations will be addressed adequately. Subsequently, training sessions will function more effectively, since they would focus on local farmers' problems and needs.

(4) For trainers to be able to teach well, they should be trained in adult education teaching methods. Extension departments should emphasize hiring trainers who have both technical knowledge as well as adult education expertise.

(5) Extension departments and agricultural universities should place higher priority on studies in the behavioral sciences. Basic courses in interpersonal communications and rural sociology should be emphasized. Additionally, in-service training sessions should place more emphasis on practical training for skills development.

(6) Extension departments should allocate funds for the purchase of modern training equipment. Personal computers, photocopying machines, and other desk-top publishing equipments would assist trainers in producing higher quality in-service teaching materials. Although the initial costs of such equipment is high, long term benefits are positive..

(7) Extension departments in developing countries should provide loans to field agents to purchase motor bikes, bicycles, and mopeds (motorized bikes) for field work. Alternatively, extension departments should increase agents' salaries and/or add special monthly cash allowances to salaries for agents to purchase their own transportation.

(8) Home-economics subject matter training should be given

greater priority by increasing the number of home-economics trainers, since most farmers are female and certain cultures forbid male agents to visit female farmers. There is need to have more female trainers as well as extension administrators and field staff so as to increase female farmers' access to appropriate agricultural technologies.

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